Overcoming challenges to deliver agricultural weather-index insurance

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CTA Technical Brief

The recent CTA workshop on 'implementing climate-smart solutions for next-generation ACP agriculture' identified four fundamental challenges to address: increase uptake and adoption of interventions and solutions, make more convincing cases for climate-smart interventions to farmers, promote appropriate policy frameworks and processes, and improve information, communication and feedback flows that enhance awareness and better connect actors and interventions. Interventions that work were targeted at five climate-smart priorities: expanding the evidence base, developing supportive policy frameworks, building stronger institutions, devising alternative financing options and prioritising farm-centric implementation.

This brief by Getaneh Erena, Viktoria Popova, Eleni Vakaki, Joost van der Woerd and Yihenew Zewdie identifies and addresses key issues facing weather-index-based agricultural insurance. Drawing on diverse experiences from Africa and Central America, it zooms in on key challenges such as affordability, quality of weather data and models, raising awareness and trust in the benefits of insurance products and policy and regulatory frameworks. To have real impact, scale is the first requirement. Scaling strategies require reliable products, access to the rural areas, increased awareness about insurance and cost-effective delivery channels.

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Weather-index insurance and climate-smart agriculture

Traditional agricultural insurance pays out to individual producers who can prove actual losses. Proving such losses can be expensive and time-consuming for insurers and insured. In contrast, index insurance uses proxies or indices such as rainfall or vegetation cover that closely mirror actual crop or livestock losses. When these indices indicate that losses are likely in a given area, all policyholders in that area receive a payout, irrespective of individual losses. This approach allows insurers to provide coverage in previously inaccessible areas and reduces their operational costs. This can enable access to affordable weather insurance for smallholder farmers and livestock keepers.

Agricultural index insurance is thus an important financial-inclusion and risk-management tool. Moreover, index insurance helps enhance the adaptive capacity of policyholders by protecting their investment in inputs and innovation. It is, therefore, considered as a tool to promote climate-smart agriculture.

Weather-index insurance allows farmers to take on the 'risk' of borrowing money to invest in inputs and other improvements needed to implement climate-smart innovations. It also encourages investors to provide these resources as they are also protected from loss. In many countries, lenders require farmers to take out index insurance. Farmers benefit by being less exposed to risks, while financial institutions can increase their agricultural portfolio by reducing both absolute and proportional risk. This should ultimately result in more competitive agricultural loans, better access to credit, lower interest rates and reduced collateral requirements.

Weather-index insurance challenges and solutions

Affordability

Cost is a major issue for all insurance schemes aimed at small-scale farmers and livestock owners. The economics have to work for the investor, the insurer and the reinsurer, as well as the farmer.

Many programmes, such as the index-based livestock insurance (IBLI) project in Ethiopia and the Scaling Up Micro-insurance in Africa (SUM-Africa) project in Uganda, subsidise premiums, at least initially. For example, the IBLI project subsidised premiums by 35%, while the Government of Uganda subsidises 30% of the premium for commercial farms and 50% for small-scale farms, rising up to 80% in 33 of the most disaster-prone districts of the country, where the risks are higher. This directly reduces the amounts that the farmers have to pay from their pocket, but the long-term sustainability of this approach is debatable.

Incofin Investment Management (Incofin) and its partners in Nicaragua are trying a different approach. Here, index-based weather insurance is taken out by microfinance institutions that are lending money to farmers. This setup reduces basis risk and administrative costs, making the coverage more accessible compared with traditional models. If weather conditions trigger a payout, it is the microfinance institution that receives the payout; it then

applies the funds received to the borrowers' loans, based on the impact of the weather event on each borrower's location. This prevents these clients from falling into arrears and avoids the need for them to sell off productive assets in order to repay their loans. This approach has resulted in some 6,000 farmers being covered by the insurance in the first 4 months of the programme – far more than might have been expected to purchase insurance individually. Combining agricultural portfolios of smaller microfinance institutions resulted in sufficient scale to allow the reinsurer to design a product that would satisfy the microfinance institutions' expectations in terms of coverage and price.

Weather data and models

Accurate, localised weather data are the foundation of any weather-index insurance, as is the technical knowledge in translating this into realistic predictions of impact on agriculture.

Earlier attempts to introduce weather-index insurance in Nicaragua failed because of the lack of weather stations and lack of accurate climate modelling (Arce, 2009). Developments in satellite-derived weather information have largely overcome such constraints and such information is now the *de facto* standard for weather-index insurance products.

There are several approaches that can be followed. For example, IBLI uses the Normalised Difference Vegetation Index to assess the amount of plant biomass present, while the project in Uganda uses drought indices based on relative evapotranspiration (RE), a very good measure of plant available water and therefore of agricultural drought.

Understanding and trusting the product

All of the projects reviewed found that smallholder farmers and livestock owners have limited understanding of what index insurance is, how it works and how they would benefit from having it. In its early stages, the IBLI project in Ethiopia had to invest heavily in awareness-raising among pastoralists, government officials and even insurance company staff as well as in

marketing activities. This led to increases in the cost of providing the insurance and hence higher insurance premiums.

The Incofin project in Nicaragua had similar experience, with limited awareness among the microfinance institutions about their real exposure to agro-climatic risks and the importance of mitigating such risks through an insurance product. To address this, Incofin supported a comprehensive diagnostic study that helped to understand the regulatory context and the institutional preparedness of the institutions, as well as to quantify and raise awareness of the agro-climatic risk to which their portfolios are exposed. It also conducted training in the technical mechanics behind the operationalisation of the insurance product.

In Uganda also, it is still a major challenge to build understanding about the benefits of insurance. This is further complicated by the limited trust that farmers, and indeed the general population, have in the insurance sector. One approach that SUM-Africa took to overcome these challenges is working with trusted, farmer-based organisations

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that already provide extension services. For example, NUCAFE (the National Union of Coffee Agribusinesses and Farm Enterprises) has been incorporating awareness-raising about and subscriptions to coffee drought insurance into their field campaigns. This has proven quite cost-effective and has resulted in good subscription rates.

Overall, it is clear that increased understanding and trust in agricultural insurance is necessary before any upscaling can be realised. It continues to need attention even as the market for insurance starts to grow.

Policy and regulatory framework

Strong policy and regulatory frameworks are essential to the success of efforts to introduce index-based insurance.

For example, during the early phases of the SUM-Africa project, the Agro-Insurance Consortium (AIC), or Kungula as it was known at the time, participated in a working group developing policy on agricultural insurance. Other participants included the Ministry of Agriculture, Animal Industries and Fisheries, the Ministry of Finance and two national farmer-based organisations, the Ugandan Cooperative Alliance and Ugandan National Farmers Federation (UNFFE). This ultimately led to the Uganda Agriculture Insurance Scheme (UAIS), a subsidy on agricultural insurance products by the Ugandan Government. Considered as a pilot, this scheme will run until at least 2021, aiming to enhance climate resilience of the agricultural sector in Uganda. Government support and the development of a sound regulatory framework to ensure good implementation of the subsidy have played a vital enabling role in upscaling of agricultural insurance in Uganda.

In the case of the Incofin project, keeping the regulator actively involved during each phase has been essential for the success of the project. The Superintendence for Banks and Financial Institutions (SIBOIF by its Spanish acronym) supervises all regulated microfinance institutions (MFIs) in Nicaragua and has shown great willingness

and support throughout the project. The lead consultant held frequent meetings with SIBOIF in order to ensure their alignment and full understanding of the product and its specifications. Given that the product is "meso" level and does not directly involve individual producers, the approval process followed a special regimen (Reforma a la Norma de Reaseguros, Fronting y Coaseguros del 11 de abril de 2018) whereby the product could go into effect without the SIBOIF having issued its formal resolution of approval, and did so on 1 July 2018, while the formal resolution was obtained in August 2018.

Linked or stand-alone product?

Linking insurance to credit facilities has proved to be a successful way to boost both sales of insurance and uptake of credit. For example, in 2017, 95% of the 46,000 weather-index insurance policies sold by SUM-Africa came from the credit-linked insurance scheme, and the sums insured were much larger: the average sum insured per farmer covered by credit-linked insurance was around US$1,750, compared with only US$300 for stand-alone insurance.

Administrative capacity and claims handling

Another common weakness that index-insurance initiatives have to deal with is the limited capacity in the local insurance industry to design, develop and operationalise index-based insurance. Staff commonly lack up-to-date knowledge on index-based insurance, including recent experiences from other countries.

In the case of the Incofin project, for example, this was solved by involving the Swiss reinsurer that was involved in the design of the product. The reinsurer undertook a historical analysis of the performance of the MFIs' loan portfolios during climatic events and presented a full technical proposal, including design of the precipitation indices and triggers per region and proposed data sources. Additionally, they prepared a simulation of the theoretical payouts that would have occurred over the past 10 years had the coverage been in force, with the goal of demonstrating to the MFIs that the product was properly designed and would be expected to pay out in the future should the same climatic patterns happen.

Weather-index insurance cases

Index-based livestock insurance in Ethiopia

The International Livestock Research Institute (ILRI), Cornell University and the Government of Kenya have demonstrated the potential of index-based livestock insurance (IBLI) to help protect pastoralists' herds against drought-related losses in northern Kenya (ILRI, 2014). IBLI (https://ibli.ilri.org) triggers payouts to contract holders in the event of severe seasonal forage scarcity during the dry season, helping pastoralists purchase the inputs and services they need to keep their animals alive. The IBLI index is derived from Normalised Difference Vegetation Index (NDVI), a satellite-imagery-based indicator of greenness that serves as a proven proxy for forage availability in the rangelands. Historic NDVI readings are used to normalise current NDVI values.

The project in southern Ethiopia introduced IBLI products to pastoral and agro-pastoral populations in the Borana zone of Oromia regional state. It also coordinated and managed a range of capacity building activities including training of agents; sourced re-insurance; conducted marketing and extension programmes; identified and addressed regulatory concerns; and managed the delivery channel and related management information systems.

Key partners in the project include Oromia Insurance Share Company, ILRI, mobile-phone app developers, non-governmental organisations, farmers' cooperatives and local and regional government.

Scaling Up Micro-insurance in Africa

The Scaling Up Micro-insurance in Africa (SUM-Africa) project started in Uganda in 2014 to demonstrate the technical and commercial viability of low-cost and large-scale index-based drought insurance in Uganda. The approach to scaling has focused on different market channels, such as credit-linked versus stand-alone insurance, or bundled with other services such as agronomic advice and e-extension. Multiple crop-specific index-insurance products are available as well as generic drought coverage.

Virtually all agricultural insurance products in Uganda are delivered through a consortium of local insurance companies, the Agro-Insurance Consortium (AIC). The index-based drought insurance schemes, sold through the AIC consortium, are designed and monitored by EARS Earth Environment Monitoring BV, using time-series of daily relative evapotranspiration (ETa/ETp) from 1982 to date with real time hourly data reception and drought monitoring at three-kilometre ground resolution.

The Ugandan Government subsidises 30% of the premium for commercial farms and 50% for small-scale farms, rising up to 80% in 33 of the most disaster-prone districts of the country, where premiums are higher. Basic premium rates on all subsidised products are limited to 5% of the sum insured (10% in disaster-prone areas) to ensure affordable prices and adequate coverage, although farmers in higher-risk areas still have to bear part of the drought risk themselves.

Sales of index-based insurance reached approximately 70,000 smallholders in 2018 and is forecasted to double in 2019/2020.

As a project SUM-Africa finished in August 2018. Since then, operations have continued on a commercial basis.

Satellite-based weather-index insurance in Nicaragua

Through its technical assistance project, Incofin Investment Management (www.incofin.com), a leading impact investment company investing in financial inclusion and sustainable agriculture in emerging markets, has partnered with two of its investee microfinance institutions – Fundenuse and Micrédito – to implement the first ever meso-model agricultural index-insurance product in Nicaragua. The project is supported by the Multilateral Investment Fund (a member of the Inter-American Development Bank Group), the Dutch development bank FMO and Belgium-based social impact fund Incofin cvso.

The product is a meso-model index-based satellite agricultural insurance against drought and excess rain. The product's innovation lies in its unique design. Whereas traditional insurance schemes require selling and administering individual policies for each farmer, in this case (meso model), the microfinance institution acts as policy holder and risk aggregator.

Within the first 4 months, the insurance was effectively protecting nearly 6,000 coffee and basic grain smallholders, more than 90% of whom possess fewer than 10 hectares of land. The product triggered its first payout in September 2018 due to the ongoing drought in Central America.

In an effort to scale up the initiative, Incofin are supporting a third Nicaraguan MFI, Financiera Fundeser, to implement a similar product adapted to the needs of their agricultural clients. This product will help protect an additional 12,000 coffee farmers from the adverse economic effects of flooding during Nicaragua's rainy season.

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This article was created through a CTA-led process to document and share actionable knowledge on 'what works' for ACP agriculture. It capitalises on the insights, lessons and experiences of practitioners to inform and guide the implementation of agriculture for development projects.

A series of video recordings with participants gives personal perspectives on the issues raised during the workshop. See: https://bit.ly/2FROq7r

The products of the workshop can be found and downloaded at: https://bit.ly/2sRaSVH

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